



Wind-E-News

Your PUC Commissioners



Gary Hanson



Bob Sahr



Dusty Johnson

PUC Commissioners' Comments

Here is a roundup of recent activity by the PUC Commissioners, related to wind.

"I was delighted to receive a call from the National Association of Regulatory Utility Commissioners President Diane Munns, asking me to serve on the National Wind Coordination Committee," said PUC Chairman Gary Hanson. "I'm looking forward to participating on the national level in debates over the direction we must take to develop our wind resources. This appointment will give me the opportunity to bring forth issues that directly affect South Dakota."

The NWCC was formed in 1994 to spur on the development of commercial

scale wind energy for the electric utility market.

Be sure to read the story about the American Wind Energy Association's conference in this issue. **"AWEA's Windpower 2005 was a superb national conference, filled with session options and a variety of perspectives,"** said PUC Vice Chairman Bob Sahr. "Several speakers referred to South Dakota and our region in their presentations. The serious wind developers in this country know the quality of our wind power in South Dakota. We continue to keep focused on this alternative energy source and what affect it can and should have to our environment and our economy."

Make plans to attend the upcoming Regional Wind Conference, September 11-13 in Brookings. More details below.

"Our office receives numerous inquiries each week from South Dakotans interested in wind energy development," said PUC Commissioner Dustin Johnson. "Given this interest and the obvious benefits our state can reap from wind energy, you won't want to miss our conference in September. We have a terrific line-up of presenters already and plans are still underway. We'll also be touring the Buffalo Ridge Wind Project, since the conference location isn't far away."

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Available Now!

Wind Power Video

Sign up on-line

to receive the Wind Video in DVD or VHS:

www.puc.sd.gov

Plan to Attend Regional Wind Conference in Brookings

You won't want to miss the Regional Wind Conference to be held September 11-13 at the Swiftel Center in Brookings. The U.S. Department of Energy and the South Dakota Public Utilities Commission are hosting the event.

The event will begin on September 11 with a guided tour of the Buffalo Ridge Wind Farm in

Minnesota. **E**ducational sessions will begin September 12 and continue throughout the day. An evening dinner is being planned, allowing attendees the opportunity to network. A wrap-up session will be held following dinner and will be open to all, allowing those unable to attend during the day the opportunity to get a summary of the sessions.

Educational sessions will continue on September 13 before the luncheon finale.

The conference presentations will include a variety of perspectives and will focus on subjects of interest to those who already have a basic, working knowledge of wind development. Those delivering the presentations will come from the region – Minnesota, Iowa, Nebraska, North Dakota and South Dakota – as well as beyond. DOE representatives from Washington, D.C. will also be presenting.

Go to www.puc.sd.gov to get more information as well as to register to attend. Call the Fairfield Inn in Brookings at (605) 692-3500 to reserve a room at the \$60 per night Wind Conference block rate before August 11.



PUC is Successful with Legislation to Assist Wind Farm Developers

South Dakota's three Public Utilities Commissioners were successful in getting legislation passed to assist in the development of wind farms in South Dakota.

Senate Bill 17 was introduced during the 2005 legislative session at the request of the PUC. It unanimously passed both chambers and was signed into law by Governor Rounds.

"Two goals of this legislation were to clarify the PUC's siting authority regarding wind farms so that wind development will not be held up by unnecessary legal challenges," said PUC Chairman Gary Hanson, "and to financially protect landowners when windmills must be removed."

The law prior to this legislation was drafted in the 1970s and was intended for large fossil fuel plants or energy conversion facilities that are capable of generating 100 megawatts or larger. **When a large wind farm is built, the towers, when aggregated, may meet the**

100 megawatt threshold.

Therefore, the new law will be better suited to siting – or approving the location of wind facilities.

"Instead of waiting to interpret the statute when a company files to build a wind farm, or does not file an application, we wanted the statute clarified now to prevent any possible legal challenges to the PUC's interpretation," said PUC Vice Chairman Bob Sahr.

The PUC Commissioners believed that any legal challenges to the PUC's interpretation of the statute could delay or even stop the construction of large wind farms in South Dakota.

"Another important goal of this legislation was to shorten the wind farm siting approval process to six months instead of the twelve months allowed previously," said PUC



Commissioner Dusty Johnson. "We clearly want to work with wind farm developers to benefit our state."

Wind farms are constructed in a much shorter time frame than most other energy conversion facilities. Given this, the PUC wanted to make it clear

to developers that such an application will be handled in a more timely fashion. This streamlining of the approval process will send the message that South Dakota is a wind development friendly state.

The new law allows the PUC to require bonds, guarantees, insurance or other requirements to fund the removal of a wind tower. This provides protection for landowners when a wind farm is no longer operating and the towers need to be removed from their property.

New Wind Info Online

Check out the new wind Web site: SDWind.com. It contains interesting points related to the South Dakota wind anemometer study, wind statistics and links to other sites. The old site was given a facelift and a new Web address. You'll also want to check out the new grants page on the PUC's site at puc.sd.gov. You'll find a list of links to various grant information and sites related to wind and other energy development. Just click on "Energy" when you're on the home page, and then click on "Energy Grant Programs." If you know of other grant opportunities that should be added to the list, please e-mail those suggestions to us at puc@state.sd.us.

Guest Editorial: Southeastern Electric Co-op's View on Wind



by Brad Schardin, Manager, Southeastern Electric Cooperative

As your electric cooperatives plan new resources to provide our membership with power 24 hours a day, seven days a week, renewables such as wind energy are and will be part of that mix. For that reason, the electric cooperatives, including Southeastern Electric Cooperative made possible the 42, 600 KW wind farms near Chamberlain and Highmore by purchasing the full

output from these projects. The fact is that your cooperatives were instrumental in the development of the first and largest commercial wind energy projects in the history of both South and North Dakota.

With those large projects in place and producing wind energy for the electric cooperatives beginning in November 2002, we are hopeful others will join in developing additional resources rather than offering unfulfilled promises.

Wind development is not currently feasible without financial assistance provided by federal production tax

credits. Because of the not-for-profit nature of the cooperative business model, we cannot take advantage of tax credits. That is why electric cooperatives have helped to develop legislation that would create Clean Energy Revenue Bonds that cooperatives and others could use to development renewable energy projects. This legislation was introduced recently by U.S. Senators Grassley (IA) and Max Baucus (MT). This bill is co-sponsored by SD Senator Tim Johnson.

The South Dakota Wind Resource Assessment Network (WRAN)

by Dr. Michael Ropp, Assistant Professor

Electrical Engineering Department
South Dakota State University

The advantages of wind power are well known to most South Dakotans: immunity to fuel costs, increasing economic competitiveness, rural economic development, and electricity production without CO₂ emissions, among others. Unfortunately wind power also has its downsides. One of the most significant problems with wind power is that the electricity output and economic viability of a wind power plant are extremely site-

dependent. Since a wind farm cannot be moved, it is important to put it in the right place.

Wind power developers study topography and weather patterns to determine a good site. Once a site is selected, developers place anemometers at the site, usually

on the tallest tilt-up tower the developer can afford. These measurements are then used with mathematical models of wind turbines to predict performance, which determines the cost at which a developer can profitably sell the wind-produced electricity.



There is one major problem with this: wind power developers are usually forced to operate on an accelerated schedule, to take advantage of programs and to satisfy investors. Thus, developers are lucky if their own anemometry can get them a year's

worth of data on a site and often they must make do with significantly shorter periods. This is undesirable because there are several cyclic variations in wind speed, and if measurements are made at the wrong time, they can lead to erroneous results. Most wind resource assessment experts agree that you need at least three years' data to have any hope of making reasonable long-term predictions. This puts developers in a quandary as they can't sit around waiting for three-year data sets.

The South Dakota Public Utilities Commission, working with engineering faculty at South Dakota State University and with funding support from federal and state governments, and industry sources, has established the Wind Resource Assessment Network (WRAN) to address this problem.

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AWEA: Wind Power 2005

PUC Vice Chairman Bob Sahr and Utilities Analyst Steve Wegman recently attended the American Wind Energy Association's annual conference in Denver, CO. Here's an interview of Steve on "Windpower 2005."

Q. Give us an example of a session you found valuable.

A. Karl-Heinz Mertins with Deere and Company gave an excellent presentation titled "Opportunities and Challenges for Community-Based Wind." It was full of good information. John Deere does not manufacture turbines nor does it plan to. However, it's heard about the interest in wind energy from its customers so it has put together a plan for financing and serving wind projects. It's good to see a reputable company like J.D. getting into that business.

Q. What else was of interest?

A. "Production tax credit" was a hot

topic. Many presenters and attendees stressed that the wind industry needs to have federal subsidies. We heard: This can't be a stand-alone industry as it needs to be developed with government assistance in order to be viable. The myth is that the wind industry can be cost-effective on its own. Wind is not capable of being a constant, ongoing energy source – like coal, gas, fuel. Wind is perceived as a niche when it comes to the energy market, and will continue to be perceived as such until government assistance becomes a reality.

Q. What was noticeably different about this AWEA conference as compared to others you've attended?

A. The number of attendees: over 4,000. This event drew the largest crowd AWEA has ever hosted. I remember going to an AWEA conference a few years ago when there were about 75 in attendance.

Q. What exhibits did you find most interesting?

A. It's always educational to see the big wind turbines being displayed and to learn how they've been further developed. There was a new "Small Wind" section with wind machines from as far away as South Africa on display.

Q. What else was new?

A. We attended an "All States" meeting. All 50 states' wind coordinators were represented, as well as representatives from the U.S. Department of Energy and several national wind laboratories. We were part of a roundtable discussion focused on "what's next in the wind industry." A key issue sparsely-populated states such as South Dakota are grappling with is how to find buyers for wind energy. That's a major hurdle many of us are dealing with.

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A huge THANK YOU to the U.S. Department of Energy for its support of the following projects: the Wind-E-Newsletter, the town meetings on wind power that have been conducted in South Dakota, the Wind Video (available NOW!) and the Wind Resource Assessment Network (WRAN). Without the expertise and financial support of the Department of Energy, all of this would have been difficult to accomplish. THANK YOU!

Resources & Links:

- SD Wind Resource Assessment Network (WRAN)
www.SDWind.com **(NEW!)**
- Small Wind Toolbox
www.awea.org/smallwind/toolbox/default.asp
- Powering the Plains
www.eerc.und.nodak.edu/wind/
- Wind on the Wires
www.windonthewires.org/
- Windustry
www.windustry.org/

SIGN

our on-line
[Production Tax
Credit Petition](#)
for more wind
power
development!

SAVE THE DATE!

Regional Wind Conference

hosted by the **US Department of Energy** and the **SD Public Utilities Commission**

September 11- 13, 2005 • Swiftel Center • Brookings, SD

WRAN (continued from page 3)

The WRAN consists of five meteorological measurement stations installed on microwave relay towers, plus a sixth site on a 50-meter tilt-up tower. The five tall-tower sites are near Ft. Thompson, Crow Lake, Leola, Crandall and Summit.

Each site includes equipment to measure wind speeds and directions at 50 and 70 meters (164 and 230 feet) above ground, plus temperature and solar irradiance sensors. The sixth site, the 50-meter site, is near Gettysburg, and provides 50-meter wind speed and direction data.

The WRAN sites provide data sets available at www.SDWind.com. Any developer, landowner, or other interested party can access this data and become involved in South Dakota's wind industry. The WRAN reduces the risk of developing sites in South Dakota,

and facilitates public discourse on this important topic

Thus far, the WRAN data has revealed some interesting characteristics of South Dakota's wind resource. Not surprisingly, all five of the tall tower sites have emerged as viable wind power development sites. However, we were surprised that the WRAN sites we thought would be the best, based on prior studies, were wrong—very wrong. The reason appears to be the accuracy of models usually used to calculate wind speeds. Usually, wind speed measurements are available only at fairly low heights; the standard airport anemometer height is 10 meters (33 feet). Earlier studies in South Dakota had to rely mostly on this data type, because that was all there was. By contrast, modern wind turbine hub heights ("hub height" is the distance from

ground to the center of the rotor) are in the 60 to 100 meter (197 to 328 feet) range. Thus, in the absence of data at hub heights, it is necessary to "translate" from 10 meters to whatever the hub height is planned to be. The mathematical function is called "power law," but this standard method appears to underestimate the actual available wind resource at the hub height in South Dakota. The reasons for this are being studied now, and a meteorological mechanism called the "low-level jet" appears to be the prime suspect. We are learning that previous studies actually underestimated South Dakota's wind resource—as hard as that is for South Dakotans to believe.

www.SDWind.com